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Prison and Community Populations at Ultra-High Risk of Psychosis: Differences and Challenges for Service Provision

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Objective: The aim of the study was to explore the feasibility of expanding a community service for early detection of psychosis into a local London prison for men in the United Kingdom.

Methods: All new receptions to a local prison for men in South London were approached for routine screening. Those who met criteria for being at ultra-high-risk of psychosis were compared with a help-seeking sample from the community who met the same criteria. Clinical and sociodemographic characteristics were compared to determine whether the prison and community populations had similar profiles and mental health needs.

Results: Of 891 prisoners screened, 44 (5%) met criteria for being at ultra-high risk of psychosis. The community sample consisted of 42 participants. Compared with the community group, prison participants had lower scores on almost all symptom measures, were less likely to have remained in school and completed exams, and were more likely to be in short-term accommodations and to be of black race-ethnicity. Lifetime use of illicit drugs was similar between the groups, but recent use was much higher in the prison group.

Conclusions: Expanding community services into custodial settings should take into account the different environment and needs of the prisoner population. Specifically, early detection and intervention services should target a broad range of mental health problems rather than psychosis alone.

Introduction

In 2009, a study was conducted to explore the feasibility of introducing a service for early detection of psychosis into a local prison for men in South London (1). The objectives were to determine prevalence and correlates of prisoners at ultra-high risk of psychosis (UHR). We were also interested in determining how prisoners who met criteria for UHR differed from the community population meeting the same criteria and how this might affect delivery of prison services. The study led to the introduction of early detection services in three prisons, which, as a direct result of our findings, were tailored toward prisoners' needs that had been assessed as different from those of the community population.

Current understanding of psychosis risk and factors associated with transition to psychosis is based on a biased profile of individuals who are seeking help (2), which is based on the assumption that help seeking is associated with distress (3). Prisoners do not routinely access services of the National Health Service (NHS) outside prison (4,5); however, they access health services extensively during their time in custody (6). Indeed, routine screening in this study indicated that the 3% of prisoners who were experiencing a first episode of psychosis had not sought help (7). Furthermore, prisoners who become unwell require transfer to an NHS hospital unless they engage with treatment, because legislation for involuntary treatment under the Mental Health Act is not applicable in prisons. Therefore, any service that promotes early detection and engagement is potentially advantageous in this setting. However, implementing such a service necessarily involves an understanding of prisoners' needs and the environment in which the services are delivered.

There is consistent evidence that the prevalence of psychosis among prisoners is high. A systematic review of the international literature based on 74 studies involving 30,635 prisoners found a 3.6% prevalence (95% confidence interval=3.1%–4.2%) of psychotic illnesses in the prison population worldwide (8). The most recent national U.K. study found an overall prevalence rate of psychosis of 4% (9). In addition, some of the factors associated with psychosis, such as substance misuse, social exclusion, and childhood adverse events (10–12), are common among prisoners (13–15). However, in contrast to community samples, the prevalence of psychosis is lower among black prisoners compared with white prisoners (16,17). Yet black prisoners are overrepresented on the caseloads of mental health teams in prisons (9), which may indicate high rates of transition to psychosis in prison or a long duration of illness.

This article reports findings from a study that compared a sample of prisoners who met criteria for UHR with a community sample meeting the same criteria. The community service and the prison in this study are located in one of the most deprived areas of the country, South London, which has one of the highest incidences of psychosis in the world (18). We hypothesized that compared with community participants, prison participants would have higher levels of social exclusion in terms of education, employment, and housing and that a greater proportion would be black and have substance misuse. We also compared the two groups on symptom severity and family psychiatric history.

Methods

Settings

Prison.

The study took place in a London prison for men holding approximately 800 prisoners age 21 and over, who were either awaiting trial or serving short sentences. Prisoners at the study site have a mean length of stay of three months (19). All prisoners undergo a brief screening on

prison entry to identify established mental illness or suicidality and detoxification requirements.

Community.

Participants were recruited via OASIS (Outreach and Support in South London) (2). All participants served by OASIS meet UHR criteria according to the Comprehensive Assessment of At-Risk Mental States (CAARMS). The service is an early detection community mental health team that treats patients ages 14–35 who are at high risk of developing psychosis with the aim of preventing or delaying the transition to psychosis or improving outcomes should transition occur.

Participants and Procedures

Prison.

Participants were identified via the daily reception list, which was surveyed by the first author. Prisoners were approached for the study if they were newly received from the courts, ages 21–35, and living in the geographic area served by the mental health services of the South London and Maudsley NHS Trust (effectively a subset of the population of the community service). Prisoners with a history of psychosis, those who had been transferred from other prisons, and those with an insufficient level of English to complete the screening questionnaire were excluded. Prisoners who met inclusion criteria were recruited if they were able to provide signed informed consent. Screening with the Prodrome Questionnaire–Brief Version (PQ-B) (20) was carried out face to face. All participants who screened positive on this questionnaire were asked to take part in a further semistructured interview with a clinician to establish whether they met the diagnostic criteria for UHR for psychosis.

Community.

OASIS serves individuals living in the catchment area of the South London and Maudsley NHS Trust. Participants were first admitted to the OASIS caseload before being asked to participate in research. Access to OASIS is via self-referral or referral from others (general practitioners, community mental health teams, family members, friends, educational establishments, and voluntary services). All persons referred were screened with the original Prodrome Questionnaire (21), with a view to ensuring suitability for assessment and to determine whether the individual was seeking help and might therefore be willing to engage with the team at the outset. Persons were excluded if they were outside the OASIS age range, lived outside the OASIS catchment boroughs, or had a history of psychosis or current psychosis. After engagement with the service was established, all clients were invited to participate in research. Clients were given written information and were required to give informed consent before participating.

Assessment Tools

Demographic proforma.

Designed for the community service, this proforma is a standardized series of questions on age, race-ethnicity (self-ascribed from nine categories: black British, black African, black Caribbean, white British, white other, Asian Oriental, Asian Indian, mixed, and other), employment, birthplace of the participant and his parents, housing status, and family psychiatric history.

Screening tool.

Community participants were screened with the original Prodrome Questionnaire (21), which consists of 92 items eliciting a yes-or-no answer. Prison participants were screened with the PQ-B (20), which consists of 25 items derived from the original questionnaire. The samples were compared on the 25 common items.

Further interview.

CAARMS is a semistructured interview schedule with eight subscales; each subscale is scored from 0 to 6 for intensity of symptoms (impact on behavior and strength of belief) and frequency of symptoms (22,23). Criteria for UHR are based on the scoring of the CAARMS positive symptoms subscales (encompassing unusual thought content, nonbizarre ideas [also known as "crystalized" ideas], perceptual abnormalities, and disorganized speech). Because of time restrictions in the prison, we limited the assessment to the use of two of the subscales: the positive symptoms subscale, and four sections of the general psychopathology subscale (mania, depression, anxiety, and self-harm and suicidality).

The assessment uses UHR criteria from the Personal Assessment and Crisis Evaluation clinic (23,24). In addition to a significant drop in functioning or chronic low functioning (score of £50 over 12 months or 30% drop in functioning in the past year, sustained for more than a month), participants met at least one of the following three criteria: first-degree relative with psychosis or schizotypal personality disorder, attenuated psychotic symptoms defined as a minimum score of 3 on both intensity and frequency on any of the CAARMS positive symptoms subscales, or a psychotic episode lasting seven days or less that resolves itself spontaneously. To meet the criteria, symptoms should occur at least sometimes outside the context of substance use or withdrawal.

Analyses and Approval

IBM SPSS Statistics, version 19.0, was used to analyze the data. For continuous variables, t tests were used, and chi square analyses were used for categorical variables. The Mann-Whitney U test was used to compare nonparametric continuous variables.

Ethical approval was granted by the Essex 2 Research Ethics Committee (REC 08/H0302/118).

Results

The prison sample comprised 44 individuals, 5% of the total number of prisoners (N=891) who were screened over three years (2009–2012). We do not have an equivalent figure for the community sample, because not everyone referred and accepted into the community service agreed to take part in research. However, it is known that over a period of ten years (2001–2011), the community service assessed 831 referrals, of whom 290 (35%) met UHR criteria. The 42 individuals who constituted the community sample were from this total group, but they were recruited since 2009. Those not participating in research, women, and individuals age 20 or under were excluded.

Demographic Characteristics

Table 1 presents demographic data. Compared with the community group, the prison group was significantly more likely to be of black race-ethnicity, be residing in short-term accommodations, to have ended their education earlier, and not to have completed exams (no school certificates). The groups did not differ in terms of age, unemployment, recent homelessness, or a family history of psychosis or other mental disorders. The finding of a higher level of black race-ethnicity and a higher level of social exclusion as measured by three of four variables in the prison UHR group confirmed our hypothesis. However, our hypothesis was not supported by two of the social exclusion variables (unemployment and recent homelessness).

Screening and Assessment

Screening.

The prison group endorsed a mean of 13.4±5.2 items of the 25 items of the PQ-B, and the community group endorsed a mean of 10.8±6.1 items (t=2.05, df=1, p=.04).

CAARMS.

Table 2 shows the median CAARMS scores for each group, which were compared by using the Mann-Whitney U test. This test compares the shape and spread of distribution of scores via ranking of the scores. A difference in medians is a clear indication of differences in distribution, but when the medians are the same, the test still detects whether one group has overall higher scores than the other (25) via the range of scores. The scores from the seven subscales of the CAARMS were compared between the two groups. Compared with the prison group, the community group scored significantly higher for both severity and frequency on five of the scales: unusual thought content, mania, depression, anxiety, and suicidality. The only item on which the prison group had significantly higher median scores was severity of disorganized speech, which participants reported but which was not necessarily evidenced in the assessment. A significant difference between the groups was found on the mania subscale, even though both groups had a median score of 0. This was due to the difference in the distribution of full-range CAARMS scores; the prison group had a range for severity of 0–3, compared with 0–4 in the community group, and 0–4 for frequency and duration, compared with 0–6 in the community group. No differences between the groups were noted for severity or frequency of perceptual abnormalities.

Substance misuse.

Table 3 presents data on lifetime substance use and use in the month prior to assessment of the groups. To measure recent use, we used the maximum weekly allowance for alcohol as recommended by the NHS of more than three to four units per day as a cutoff point for alcohol abuse (www.nhs.uk/conditions/alcohol-misuse). Of nine substances, the prevalence of lifetime cannabis and crack use was significantly higher in the prison group, compared with the community group. For recent substance misuse, use of all substances was higher in the prison group, compared with the community group, and the difference was significant for cannabis, crack, and sedatives. Crack, cocaine, and stimulants were combined to create a variable “any stimulant” for participants who had recent use of any of the three drugs; recent use of any stimulant was found to be significantly different between the groups. When use of multiple substances was examined (excluding the variable “any stimulant”), the odds of being in the prison group almost tripled (odds ratio=2.87) for every additional substance used, compared with the community group. Overall our hypothesis that substance misuse was more prevalent in the prison group than in the community group was confirmed, although this was not the case for each individual substance.

Discussion

The overarching aim of the study was to test the feasibility of expanding an existing community service for early detection of psychosis into a local London prison. We thought that it was important as part of the feasibility study to compare the two populations clinically and sociodemographically and in terms of mental health needs. Our findings had a direct impact on the service that was eventually delivered in the prison.

Our hypotheses were partially confirmed. Prisoners were more socially excluded than the community sample on some measures (a lower level of education and a greater likelihood of residence in short-term accommodations) but not on others (employment and homelessness). Prisoners were also more likely to be of black race-ethnicity. On the CAARMS, prisoners endorsed significantly more items than the community group at screening, but the community group had significantly higher levels of symptoms on all but two CAARMS subscales. Prisoners also had higher rates of recent drug use (except for cocaine, stimulants, and opioids) and, most notably, were more likely to engage in multiple drug use.

Our original plan of exploring the feasibility of expanding the community service into the prison was based on the idea that prevalence of psychosis among prisoners is high and,

therefore, the number of prisoners who would meet criteria for being at ultra-high risk of psychosis would also be high. The finding of 5% prevalence of UHR in a population with 4% psychosis prevalence was lower than we expected. In a population with a high prevalence of psychosis and many of the risk factors associated with psychosis (poverty, unemployment, childhood adversity, and high rates of cannabis misuse), as well as the added recognized stress of going to prison, we expected the number of prisoners meeting UHR criteria to be higher than our finding of 5%.

High prevalence of disease with low incidence is considered to be the result of long duration of illness (26). A relatively low prevalence of UHR may indicate a low incidence of psychosis in this population. However, incidence is unknown because no studies of psychosis incidence in prisons have been conducted. This is an important question because the assumption is that prison is detrimental to health and that imprisonment would be likely to push those who are vulnerable to the threshold for transition to psychosis. Two studies have examined the course of psychosis during approximately six weeks after prison entry, and both found that imprisonment is not universally detrimental to mental health (27,28). The authors speculated that a good detoxification regimen, regular meals, some level of daytime structure, and access to health care may contribute to improved mental health.

All of the individuals in the community group in this study were seeking help, which is thought to be indicative of a high level of distress (29,30). However, it does not follow that that persons who do not seek help are not experiencing distress. We have previously reported findings of a 3% prevalence rate of first-episode psychosis and a 15% rate of other current mental health problems in a prison population (7). The vast majority of individuals in that sample had not sought help after they entered the justice system.

This was the first study comparing prisoners with a community group in which both groups met criteria for UHR as measured by the CAARMS. However, a number of limitations should be noted. The community group was derived from an established service where individuals were seeking help, whereas participants in the prison group were approached for routine screening in their first week after prison entry. The assessments used in the prison were necessarily shortened versions of those used in the community because of the time available in the prison regimen for assessment. We did not have the resources to follow up the prison group, and thus we could not compare rates of transition to psychosis for the two groups. The small sample in each group limited the analyses that could be carried out. We were also hindered by the lack of matched detail on the questionnaires used for each group (for example, the PQ-B scale has a score for distress, whereas the PQ does not). We also did not assess for personality disorder, which may be important because the prevalence of personality disorder is high among prisoner populations (31) and could have affected assessment. It is possible that higher recent drug use among the prisoners could have affected the assessment; however, this seems unlikely because of the lower level of symptoms among prisoners and the relatively low prevalence of UHR (5%).

Conclusions

The project was a local response to the transformation of health care services in the prison service and the NHS mandate to adhere to the principle of equivalence of care (32). Equivalence of care has been defined as ensuring “that prisoners are given access to the same quality and range of healthcare services as the general public receives from the National Health Service” (32). The notion that mental health services should be understood or implemented as a mirror of community services belies the reality of the prison environment. Addressing the mental health needs of local prison populations, where turnover and levels of comorbidity are high and where clinicians are unable to ensure continuity of care both when offenders are released to the community or when they are transferred to other prisons, raises serious questions of both feasibility and cost-effectiveness. We argue that it calls for a

profound shift in approach to how services are provided and what services should be provided. A core feature of such an approach would be an earnest attempt to identify individuals showing signs of potential mental illness. We acknowledge that individuals who enter prison do not necessarily volunteer information about symptoms or distress. Nevertheless, when prisoners in this study were initially interviewed, they engaged extremely well in the process, with most agreeing to screening, assessment, and triage when appropriate (1).

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TABLE 1. Characteristics of prisoners and community participants who met criteria for ultra-high risk of psychosis

	Prison (N=44)		Community (N=42)		Test		
Characteristic	**N**	**%**	**N**	**%**	**statistic**	**df**	**p**
Race-ethnicity					χ^2=7.8	2	.02
White	17	39	28	67			
Black	20	45	8	19			
Other	7	16	6	14			
Social exclusion							
No school certificates	22	50	4	10	χ^2=16.1	1	<.001
Unemployed	28	64	22	52	χ^2=1.1	1	.29
Living in short-term accommodations	20	46	7	20	χ^2=5.6	1	.02
Recent homelessness	8	18	4	11	χ^2=.7	1	.41
Family psychiatric history							
Of psychosis[a]	15	34	10	32	χ^2=.3	1	.87
First-degree relative					χ^2=3.5	2	.19
Psychosis	16	26	9	43			
Other mental illness[b]	14	61	7	33			
Age (M±SD)	27.5±5.8		26.1±4.3		t=–1.61	84	.11
Education (M±SD years)	10.8±2.9		14.0±2.5		t=5.23	83	<.001

[a]Data missing for 11 community participants

[b]Data missing for 21 participants from each group

TABLE 2. Scores on subscales of the Comprehensive Assessment of At-Risk Mental States of prisoners and community participants who met criteria for ultra-high risk of psychosis

	Prison (N=44)		Community (N=42)		
Subscale and measure	**Median**	**IQR[a]**	**Median**	**IQR[a]**	**p**
Unusual thought content					
Severity	2	1–4	4	3–5	.002
Frequency and duration	3	2–4	4	3–5	.001
Perceptual abnormalities					
Severity	3	1–4	3	2–4	.37
Frequency and duration	2.5	1–4	2	1–3	.98
Disorganized speech					
Severity	2	1–3	1	0–2	.02
Frequency and duration	3	2–4	2	0–4	.05
Mania					
Severity	0	0–0	0	0–2	.002
Frequency and duration	0	0–0	0	0–3	.009
Depression					
Severity	2	0–3	3	0–4	.05
Frequency and duration	2	0–4	4	0–5	.01
Anxiety					
Severity	2	0–3	4	3–4	<.001
Frequency and duration	2	0–4	4	3–4	.002
Suicidality					
Severity	0	0–2	2	0–3	<.001
Frequency	0	0–1	2	0–3	.001

[a]Interquartile range. Possible scores range from 0 to 6, with higher scores indicating higher intensity and higher frequency.

TABLE 3. Substance misuse among prisoners and community participants who met criteria for ultra-high risk of psychosis

	Prison (N=44)		Community (N=42)			
Period and substance	**N**	**%**	**N**	**%**	**χ^{2a}**	**p**
Lifetime						
Alcohol	38	86	32	94	1.25	.26
Cannabis	41	93	32	78	4.0	.05
Inhalants	7	16	2	6	1.7	.18
Crack	21	48	6	18	7.7	.007
Cocaine	28	64	19	54	.71	.40
Stimulants	25	57	20	56	.01	.91
Sedatives	14	32	7	21	1.1	.30
Opioids	13	30	5	15	2.4	.12
Hallucinogens	14	32	13	39	.47	.49
Past month[b]						
Alcohol >21 units per week	15	34	6	18	2.6	.10
Cannabis	34	77	9	27	20.0	<.001
Crack	12	27	2	6	5.7	.02
Cocaine	13	30	5	15	2.4	.12
Stimulants	5	11	2	6	.58	.45
Any stimulant[c]	19	43	7	21	4.4	.04
Sedatives	9	21	1	3	4.9	.03
Opioids	6	14	2	7	1.2	.28

[a]df=1

[b]Odds of being in the prison group almost tripled (odds ratio=2.87, 95% confidence interval=1.65–4.98, p<.001) for every additional substance used (reference: community group).

[c]Crack, cocaine, or stimulants